

MATH SKILLS TRANSPARENCY MASTER**29****Using Solubility
Product Constants****Use with Chapter 17,
Section 17.3****Solubility Product Constants at 298 K**

Compound	K_{sp}	Compound	K_{sp}	Compound	K_{sp}
Carbonates		Halides		Hydroxides	
BaCO ₃	2.6×10^{-9}	CaF ₂	3.5×10^{-11}	Al(OH) ₃	4.6×10^{-33}
CaCO ₃	3.4×10^{-9}	PbBr ₂	6.6×10^{-6}	Ca(OH) ₂	5.0×10^{-6}
CuCO ₃	2.5×10^{-10}	PbCl ₂	1.7×10^{-5}	Cu(OH) ₂	2.2×10^{-20}
PbCO ₃	7.4×10^{-14}	PbF ₂	3.3×10^{-8}	Fe(OH) ₂	4.9×10^{-17}
MgCO ₃	6.8×10^{-6}	PbI ₂	9.8×10^{-9}	Fe(OH) ₃	2.8×10^{-39}
Ag ₂ CO ₃	8.5×10^{-12}	AgCl	1.8×10^{-10}	Mg(OH) ₂	5.6×10^{-12}
ZnCO ₃	1.5×10^{-10}	AgBr	5.4×10^{-13}	Zn(OH) ₂	3×10^{-17}
Hg ₂ CO ₃	3.6×10^{-17}	AgI	8.5×10^{-17}	Sulfates	
Chromates		Phosphates		BaSO ₄	1.1×10^{-10}
BaCrO ₄	1.2×10^{-10}	AlPO ₄	9.8×10^{-21}	CaSO ₄	4.9×10^{-5}
PbCrO ₄	2.3×10^{-13}	Ca ₃ (PO ₄) ₂	2.1×10^{-33}	PbSO ₄	2.5×10^{-8}
Ag ₂ CrO ₄	1.1×10^{-12}	Mg ₃ (PO ₄) ₂	1.0×10^{-24}	Ag ₂ SO ₄	1.2×10^{-5}

MATH SKILLS TRANSPARENCY WORKSHEET

Using Solubility Product Constants

Use with Chapter 17,
Section 17.3

Use the list of solubility product constants (K_{sp}) to answer the following questions. Avoid doing detailed calculations. Try to estimate the answers as much as possible and provide a short justification for your reasoning.

1. Write the solubility product constant expression for each of the following salts.
 - a. PbI_2 _____
 - b. Ag_3PO_4 _____

2. What is the solubility of $PbSO_4$ in water at 298 K?

3. What is the approximate concentration of fluorine in a CaF_2 solution?

4. A chemist finds that 4.6×10^{-5} moles of Ag_2SO_4 dissolves in a liter of a certain solvent. Is the solvent water or $AgNO_3$ solution? Explain.

5. Will a precipitate form if a $0.075M$ $MgCl_2$ solution is added to an equal amount of a $0.25M$ $NaOH$ solution? Explain.
